CLAIMS

[1] A method of electrochemically measuring a hematocrit (Hct) value of blood, comprising:

providing an electrode system having a working electrode and a counter electrode, a redox substance being provided on the counter electrode but not on the working electrode;

supplying blood to the electrode system;

applying a voltage to the electrode system in this state to cause an oxidation current or a reduction current to flow between the electrodes;

detecting the oxidation current or the reduction current; and

determining a Hct value of the blood based on a value of the detected current.

[2] The method according to claim 1, wherein the redox substance comprises a redox substance that is in at least one of an oxidized state and a reduced state.

[3] The method according to claim 1, wherein the redox substance is a ferricyanide.

[4] The method according to claim 3, wherein the ferricyanide is potassium ferricyanide.

[5] The method according to claim 1, wherein the redox substance is a ferrocyanide.

[6] The method according to claim 5, wherein the ferrocyanide is potassium ferrocyanide.

[7] The method according to claim 1, wherein the working electrode on which the redox substance is not provided is coated with a polymeric material.

[8] The method according to claim 7, wherein the polymeric material is carboxymethylcellulose.

[9] The method according to claim 1, wherein the applied voltage is equal to

or higher than a voltage causing electrolysis of water.

[10] The method according to claim 1, wherein the applied voltage is 1 to 10 V.

[11] The method according to claim 1, wherein the applied voltage is 1 to 6.5 V.

[12] The method according to claim 5, wherein a voltage that is negative with respect to a voltage applied to the counter electrode is applied to the working electrode.

[13] A sensor for electrochemically measuring a hematocrit (Hct) value of blood, the sensor comprising:

an electrode system having a working electrode and a counter electrode, a redox substance being provided on the counter electrode but not on the working electrode,

wherein blood is supplied to the electrode system, a voltage is applied to the electrode system in this state to cause an oxidation current or a reduction current to flow between the electrodes, and a value of the oxidation current or the reduction current is detected.

[14] The sensor according to claim 13, wherein the working electrode and the counter electrode are disposed on the same insulating base material so as to be coplanar and spaced apart from each other.

[15] The sensor according to claim 13, further comprising a channel for leading blood to the sensor,

wherein the working electrode is on an upstream side and the counter electrode is on a downstream side with respect to flow of the blood supplied from one end of the channel.

[16] The sensor according to claim 13, wherein the redox substance comprises a redox substance that is in at least one of an oxidized state and a reduced state.

[17] The sensor according to claim 13, wherein the redox substance is a ferricyanide.

[18] The sensor according to claim 17, wherein the ferricyanide is potassium ferricyanide.

[19] The sensor according to claim 13, wherein the redox substance is a ferrocyanide.

[20] The sensor according to claim 19, wherein the ferrocyanide is potassium ferrocyanide.

[21] The sensor according to claim 13, wherein the working electrode on which the redox substance is not provided is coated with a polymeric material.

[22] The sensor according to claim 21, wherein the polymeric material is carboxymethylcellulose.

[23] The sensor according to claim 13, wherein the applied voltage is equal to or higher than a voltage causing electrolysis of water.

[24] The sensor according to claim 13, wherein the applied voltage is 1 to 10 V.

[25] The sensor according to claim 13, wherein the applied voltage is 1 to 6.5 V.

[26] The sensor according to claim 19, wherein a voltage that is negative with respect to a voltage applied to the counter electrode is applied to the working electrode.

[27] The sensor according to claim 13, further comprising an insulating substrate,

wherein the electrode system and a channel for leading the blood to the electrode system are formed on the insulating substrate, and

one end of the channel communicates with the electrode system and the other end of the channel is open toward an outside of the sensor so as to serve as a blood supply port.

[28] The sensor according to claim 27, further comprising a spacer and a cover,

wherein the cover is disposed on the insulating substrate via the

spacer.

[29] The sensor according to claim 13, wherein a crystal homogenizing agent further is provided on the electrode system.

[30] A measuring device for measuring a Hct value, comprising:

holding means for holding the sensor according to claim 13;

application means for applying a constant voltage to the electrode system of the sensor; and

detection means for detecting the oxidation current or the reduction current flowing through the electrode system of the sensor.

[31] The measuring device according to claim 30, further comprising calculation means for calculating a Hct value based on a value of the current detected by the detection means,

wherein a voltage applied by the application means is equal to or higher than a voltage causing electrolysis of water.